CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

NOTICE OF COMMISSION APPROVAL OF EARLY COMPLIANCE CREDIT FOR THE 2005 RESIDENTIAL LIGHTING STANDARDS

On May 5, 2004, The California Energy Commission approved a new limited-term Compliance Option for early compliance with the residential lighting standards portion of the *2005 Building Energy Efficiency Standards*.

The Compliance Option establishes a limited-term performance standards credit of 1.5 kBtu / ft^2 per year for eligible residential buildings that are field verified by a certified HERS rater to comply with the residential lighting standards portion of the *2005 Building Energy Efficiency Standards* in combination with the mandatory lighting requirements in the current Standards.

Effective Date

This Compliance Option shall be available from May 5, 2004 until the date the *2005 Building Energy Standards* take effect (October 1, 2005). It shall be available for complying residential lighting systems for which a building permit application is submitted prior to the effective date of the *2005 Building Energy Efficiency Standards*. This Compliance Option and all compliance forms for this Compliance Option shall terminate for building permit applications submitted on or after the date that the *2005 Building Energy Standards* take effect.

HERS Rater Field Verification

This Compliance Option requires field verification by a certified HERS Rater. The building department shall not approve the building until the building department has received a copy of the attached Supplement to Form CF-4R that has been signed and dated by the HERS Rater.

Performance Standards Calculations

The attached Supplement to Form C-2R shall be completed by the builder or designer and submitted to the building department with the plans and specifications. This form replaces the Energy Use Summary table of the actual C-2R generated by compliance software. To be valid, the Supplement to C-2R shall be attached to a signed CF-1R and C-2R forms generated by compliance software, or copied on the plan set.

Compliance Requirements

The credit for early compliance of the residential lighting standards portion of the *2005 Building Energy Efficiency Standards* shall be available for residential buildings meeting all of the following criteria:

1. Single family buildings, or multi-family buildings where single dwelling units are modeled individually for showing compliance using the multiple orientation approach;
2. All of the residential lighting requirements for both the 2001 and 2005 Standards are met, and
3. Compliance is demonstrated through HERS rater field verification.

All of the following provisions from the 2001 and 2005 residential lighting requirements shall be met to qualify for the early compliance credit:

Required residential lighting measures from the 2001 Standards

- General lighting in kitchens shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen. (§150(k)1 – [2001])
- Rooms with a shower or bathtub shall have at least one high efficacy luminaire switched at the entrance to the room. (§150(k)2 – [2001])

Required residential lighting measures from 2005 Standards

- High Efficacy Luminaires for residential lighting shall contain only high efficacy lamps and shall not contain a medium screw base socket. However, luminaires that are installed outdoors and manufactured for high intensity discharge lighting (HID) containing an HID lamp, and factory-installed hardwired HID ballast and HID rated medium screw base socket, and meeting minimum lumens per Watt shall also be allowed. (§150 (k)1 – [2005])

- To determine the minimum lamp efficacy category, only the Watts of the lamp (not including the ballast) shall be considered. A high efficacy lamp has a lamp efficacy that is no lower than the efficacies in the following table.

Lamp Power Rating	Minimum Lamp Efficacy
15 Watts or less	40 lumens per Watt
Over 15 Watts to 40 Watts	50 lumens per Watt
Over 40 Watts	60 lumens per Watt

- Ballasts for lamps rated 13 Watts or greater shall be electronic and shall have an output frequency no less than 20 kHz. (§150 (k) 1 – [2005])

- For kitchen lighting, luminaire power shall be determined according to §130(c) – [2005] as follows:

  §130(c) 1 [2005]. The wattage of incandescent or tungsten-halogen luminaires with medium screw base sockets and not containing permanently installed ballasts shall be the maximum relamping rated wattage of the luminaire, as listed on a permanent factory-installed label, as specified by UL 1598.

  For luminaires with modular components that allow conversion between screw-based and pin-based sockets without changing the luminaire housing or wiring, an incandescent lamp of the maximum relamping wattage for which the system is rated shall be used to determine lamp efficacy and luminaire power.

  §130(c) 2 [2005]. The wattage of luminaires with permanently installed or remotely installed ballasts shall be the operating input wattage of the rated lamp/ballast combination published in manufacturer's catalogs based on independent testing lab reports as specified by UL 1598.

  Exception to §150(k) 2 [2005]. The wattage of high efficacy luminaires shall be the total nominal rated wattage of the installed high efficacy lamp(s).

  §130(c) 3 [2005]. The wattage of line-voltage lighting track and plug-in busway which allows the addition or relocation of luminaires without altering the wiring of the system shall be the volt-ampere rating of the branch circuit feeding the luminaires or an integral current limiter controlling the luminaires, or the higher of the maximum relamping rated wattage of all of the luminaires included in the system, listed on a permanent factory-installed label, as specified by UL 1574, or 45 Watts per linear foot.

  Line-voltage track lighting systems shall not be considered a high efficacy source for residential lighting systems, regardless of the type or number of luminaire heads that are initially connected to the track.

  §130(c) 4 [2005]. The wattage of low-voltage lighting track, cable conductor, rail conductor, and other low voltage flexible lighting systems, which allow the addition or relocation of luminaires without altering the wiring of the system, shall be the rated wattage of the transformer supplying the system, listed on a permanent factory installed label, as specified by UL 1574 or UL 1598.

Low-voltage track lighting systems shall not be considered a high efficacy source for residential lighting systems.

§130(c) 5 [2005]. The wattage of all other miscellaneous lighting equipment [lighting equipment not already addressed in §130(c) 1 through 4] shall be the maximum rated wattage [for screw-based sockets other than medium based] of the lighting equipment, or operating input wattage [the maximum rated wattage for any other lighting system not addressed in §130(c) 1 through 4, including low-voltage mono point systems] of the system, listed on a permanent factory-installed label, or published in manufacturer's catalogs, based on independent testing lab reports as specified by UL 1574 or UL 1598.

For all luminaires with incandescent lamp holders the maximum rated relamping wattage shall be used, not the wattage of the lamps that are installed.

- Permanently installed luminaires in kitchens shall be high efficacy luminaires except up to 50 percent of the total rated wattage of all permanently installed luminaires in kitchens may be in luminaires that are not high efficacy luminaires, provided that these luminaires are controlled by switches separate from those controlling the high efficacy luminaires. (§150(k)2 [2005])

  "Kitchen" in a residential dwelling unit is a room or area used for cooking, food storage and preparation, and washing dishes, including associated counter tops and cabinets, refrigerator, stove, ovens, and floor area. Adjacent areas are considered kitchen if the lighting for the adjacent areas is on the same switch as the lighting for the kitchen. (§101 [2005])

- Permanently installed luminaires in bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires, or shall be controlled by an occupant sensor(s) certified to comply with §119 (d) [2005], does not turn on automatically or have an "always on" option. (§150(k)3 [2005])

  A bathroom is a room containing a shower, tub, toilet or a sink that is used for personal hygiene. (§101 [2005])

- Permanently installed luminaires located other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires, or shall be controlled by a dimmer switch, or controlled by a occupant sensor that complies with §119 (d) [2005] which does not turn on automatically or have an always on option. (§150(k)4 [2005])

Closets less than 70 ft^2 are an exception to this requirement.

- Luminaires that are recessed in insulated ceilings shall be approved for zero clearance insulation cover (IC), when tested in accordance with ASTM E283, and shall be labeled as air tight (AT) to less than 2.0 CFM at 75 Pascals. (§150(k)5 [2005])
- Luminaires providing outdoor lighting that are permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy luminaires, or shall be controlled by motion sensors with integral photo control certified to comply with §119 (d) [2005]. (§150(k)6 [2005])

  Lighting around swimming pools, water features or other locations subject to Article 680 of the California Electric Code are an exception to this requirement

- Lighting for parking lots for eight or more vehicles shall have lighting that complies with §130, 132, 147 [2005].
- Lighting for parking garages for eight or more vehicles shall have lighting that complies with §130,131, 146 [2005]. (§150(k)7 [2005])
- Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires or controlled by occupant sensor(s) certified to comply with §119 (d) [2005]. (§150(k)8 [2005])

Side 1 of 2 sides *Supplement to Form C-2R*

EARLY COMPLIANCE 2005 RESIDENTIAL LIGHTING STANDARDS

The supplement to the C-2R is a limited term form. It shall not be used for any projects applying for permit after the date the 2005 Building Energy Efficiency Standards become effective. It shall be used only for those projects using the temporary Compliance Option for early implementation of the 2005 residential lighting Standards. Any replications of this form shall include this paragraph in its entirety.

Project Title	Date
Project Address	Building Permit Number

SUPPLEMENTAL MANDATORY LIGHTING MEASURES CHECKLIST

Instructions: Check or initial applicable boxes when completed.

DESCRIPTION	BUILDER or DESIGNER
2001 Standards §150(k) 1: General lighting in kitchens shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen.	☐ OK
2001 Standards §150(k) 2: Rooms with a shower or bathtub shall have at least one luminaire with lamps with an efficacy of 40 lumens/Watt or greater switched at the entrance to the room	☐ OK
2005 Standards, §150(k) 2: Permanently installed luminaires in kitchens shall be high efficacy luminaires except up to 50 percent of the total rated wattage of permanently installed luminaires (determined as specified by §130 (c)) in kitchens may be in luminaires that are not high efficacy luminaires, provided that these luminaires are controlled by switches separate from those controlling the high efficacy luminaires.	☐ OK
2005 Standards, §150(k) 3: Permanently installed luminaires in bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires OR shall be controlled by an occupant sensor(s) certified to comply with Section 119 (d), which does not turn on automatically or have an “always on” option.	☐ OK
2005 Standards, §150(k) 4: Permanently installed luminaires located other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires (except closets less than 70ft2) OR shall be controlled by a dimmer switch OR shall be controlled by a occupant sensor that complies with the 2005 Standards, Section 119 (d) which does not turn on automatically or have an “always on” option.	☐ OK
2005 Standards, §150(k) 5: Luminaires that are recessed into insulated ceilings shall be approved for zero clearance insulation cover (IC) and shall be labeled as air tight (AT) to less than 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283.	☐ OK
2005 Standards, §150(k) 6: Luminaires providing outdoor lighting permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy luminaires (not including lighting around swimming pools, water features or other locations subject to Article 680 of the California Electric Code) OR shall be controlled by motion sensors with integral photo control certified to comply with Section 119 (d).	☐ OK
2005 Standards, §150(k) 7: Lighting for parking lots for 8 or more vehicles shall have lighting that complies with Sections 130, 132, 147. Lighting for parking garages for 8 or more vehicles shall have lighting that complies with Sections 130,131, 146.	☐ OK ☐ N/A
2005 Standards, §150(k) 8: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires OR shall be controlled by occupant sensor(s) certified to comply with Section 119 (d).	☐ OK ☐ N/A

Note 1: This Supplement to C-2R replaces the Energy Use Summary table of the actual C-2R generated by compliance software.

Note 2: To be valid, this Supplement to C-2R shall be attached to a signed CF-1R and C-2R forms generated by compliance software, or copied on the plan set.

Side 2 of 2 sides ***Supplement to Form C-2R***

EARLY COMPLIANCE 2005 RESIDENTIAL LIGHTING STANDARDS

EXAMPLE - Single Orientation Energy Use Summary					
Front Orientation:	North				
	A	B	C	D	E
Energy Use (kBtu/ sf-Yr)	Standard Design	Proposed Design from C-2R	Early Compliance Credit	Proposed design minus Credit (B-C)	Pass? A ≥ D (YES) D > A (NO)
	40.05	41.08	-1.50	39.58	Yes

Single Orientation Energy Use Summary

(Single family buildings)

Front Orientation:					
	A	**B**	**C**	**D**	**E**
Energy Use (kBtu/ sf-Yr)	Standard Design	Proposed Design from C-2R	Early Compliance Credit	Proposed design minus Credit (B-C)	Pass? A ≥ D (YES) D > A (NO)
			-1.50		

Multiple Orientation Approach Energy Use Summary

(Multi-family buildings where single dwelling units are modeled individually for showing compliance using the multiple orientation approach)

Front Orientation:	North				
	A	**B**	**C**	**D**	**E**
Energy Use (kBtu/ sf-Yr)	Standard Design	Proposed Design from C-2R	Early Compliance Credit	Proposed design minus Credit (B-C)	Pass? A ≥ D (YES) D > A (NO)
			-1.50		
Front Orientation:	East				
Energy Use (kBtu/ sf-Yr)	Standard Design	Proposed Design from C-2R	Early Compliance Credit	Proposed design minus Credit (B-C)	Pass? A ≥ D (YES) D > A (NO)
			-1.50		
Front Orientation:	South				
Energy Use (kBtu/ sf-Yr)	Standard Design	Proposed Design from C-2R	Early Compliance Credit	Proposed design minus Credit (B-C)	Pass? A ≥ D (YES) D > A (NO)
			-1.50		
Front Orientation:	West				
Energy Use (kBtu/ sf-Yr)	Standard Design	Proposed Design from C-2R	Early Compliance Credit	Proposed design minus Credit (B-C)	Pass? A ≥D (YES) D > A (NO)
			-1.50		

Supplement to Form CF-4R

EARLY COMPLIANCE 2005 RESIDENTIAL LIGHTING STANDARDS

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HERS Rater Field Verification

Project Title		Date
Project Address		Builder Name
HERS Rater	Telephone	Plan Number
Certifying Signature		Date
Firm		HERS Provider
Street Address		City/State/Zip

SUPPLEMENTAL MANDATORY LIGHTING MEASURES CHECKLIST

Instructions: Check or initial applicable boxes when completed.

DESCRIPTION	HERS RATER
2001 Standards §150(k) 1: General lighting in kitchens shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen.	☐ OK
2001 Standards §150(k) 2: Rooms with a shower or bathtub shall have at least one luminaire with lamps with an efficacy of 40 lumens/Watt or greater switched at the entrance to the room	☐ OK
2005 Standards, §150(k) 2: Permanently installed luminaires in kitchens shall be high efficacy luminaires except up to 50 percent of the total rated wattage of permanently installed luminaires (determined as specified by §130 (c)) in kitchens may be in luminaires that are not high efficacy luminaires, provided that these luminaires are controlled by switches separate from those controlling the high efficacy luminaires.	☐ OK
2005 Standards, §150(k) 3: Permanently installed luminaires in bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires OR shall be controlled by an occupant sensor(s) certified to comply with Section 119 (d), which does not turn on automatically or have an “always on” option.	☐ OK
2005 Standards, §150(k) 4: Permanently installed luminaires located other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaires (except closets less than 70ft2) OR shall be controlled by a dimmer switch OR shall be controlled by a occupant sensor that complies with the 2005 Standards, Section 119 (d) which does not turn on automatically or have an “always on” option.	☐ OK
2005 Standards, §150(k) 5: Luminaires that are recessed into insulated ceilings shall be approved for zero clearance insulation cover (IC) and shall be labeled as air tight (AT) to less than 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283.	☐ OK
2005 Standards, §150(k) 6: Luminaires providing outdoor lighting permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy luminaires (not including lighting around swimming pools, water features or other locations subject to Article 680 of the California Electric Code) OR shall be controlled by motion sensors with integral photo control certified to comply with Section 119 (d).	☐ OK
2005 Standards, §150(k) 7: Lighting for parking lots for 8 or more vehicles shall have lighting that complies with Sections 130, 132, 147. Lighting for parking garages for 8 or more vehicles shall have lighting that complies with Sections 130,131, 146.	☐ OK ☐ N/A
2005 Standards, §150(k) 8: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires OR shall be controlled by occupant sensor(s) certified to comply with Section 119 (d).	☐ OK ☐ N/A